MALIGNANCIES OF THE COLON*

THE MEDICAL ASPECT

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To me the medical aspect of malignancies of the colon is simple. It has but one objective—the making of a relatively early diagnosis, or, perhaps better put, the earliest possible potential, if not definite, diagnosis, so that the only effective therapy—surgery—may be utilized with a maximum chance of success. This is the only treatment worth considering at the present reading and to produce the greatest number of cures and to minimize the number of failures must be our great desideratum. Helping us is the fact that these malignancies in the main grow very slowly and as a rule metastasize late; hindering us is the fact that there is no characteristic symptom complex for there may be no symptoms or the symptoms may be so vague, so indefinite, so banal or commonplace that they will arouse no suspicion of serious trouble—a suspicion that would lead to the careful examination of the patient with the utilization of the necessary physical and chemical procedures that should lead to the correct diagnosis in the vast majority of cases. Of course a very early diagnosis can never be made except by accident for the life of these growths is far longer than usually believed. There must be a long latent period where diagnosis is impossible, but on the other hand there are very few of these cases in which the correct or at least probable diagnosis should not have been made months or even in some cases a year or more earlier if one had suspected its possibility and had set in train the proper investigations.

Cancer of the digestive tract *in toto* is the most common form of neoplasm. Cancer of the stomach, according to the Mayo statistics, is met with about as commonly as cancer of the entire large bowel; and while carcinoma of the rectum makes up one-half or three-fifths, or perhaps even

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more of large bowel neoplasms, nevertheless there is an appalling number of deaths in colonic new growths, many of which should have been prevented.

We do not know the cause of cancer of the colon; trauma may play a rôle, for the seats of potential injury by the fecal column, the sigmoid, the cæcum and the flexures, are in that order the sites of predilection. But the evidence is scant. Newcomb has shown there is little or no evidence of its origin from decubital ulcer; though Göckel collected a few cases from the literature apparently due to foreign bodies and a few rare cases have been reported secondary to tuberculous ulcer or to fecaliths associated with an appendical lesion.

Deaths from acute infections and from tuberculosis are steadily decreasing; deaths from cancer just as steadily increasing, an increase not accounted for by constantly improving diagnostic procedure and correspondingly better diagnosis. Something in our modern life, some of the incidents and accidents of an increasingly complex civilization—the emanations of modern life as it were—may contain the germ of such a cause. Is it our modern diet, with in some cases marked preponderance of animal protein; in other instances, the elimination of the more primitive types of food? Is it our habits of eating or may the tension and strain under which we live with their inevitable functional disturbances of the digestive tract play a part? Is it due to toxins or poisons peculiar to a modern environment? Why should digestive cancer be so rare among the primitive peoples of South America? Why does McGarrison see practically no cases in his abdominal surgery on thousands of hill dwellers in Northern India? Why such variation as to incidence in various countries? Does heredity play a rôle? Is there a contagious element? Until these questions are answered and until we know the cause our early diagnosis can only be made by the crude tests at our command.

It is a disease of later life, the fifth, sixth and seventh decades. Males are more frequently affected than females

and its growth is relatively slow. Billroth reported many years ago a case lasting ten years; but cases have been noted in early life and here the course is as a rule more rapid. Bernoulli more than twenty years ago collected 50 cases in patients under twenty years of age.

Large bowel cancer causes from 5 to 10 per cent of all deaths; it is the commonest cause of large bowel obstruction. According to some, 90 per cent of the cases are of this origin. It has an extremely high death rate. It may be multiple and while usually this is due to extension or metastases, Rankin and Bargen have recently reported sixteen cases from the Mayo Clinic with two or more primary lesions. Some of these are certainly due to malignant degeneration of multiple polyps. In the vast majority of cases it is primary; but cases have been described secondary to carcinoma of stomach or gall bladder.

Adenocarcinoma is the commonest form, but scirrhus is not rare and medullary and colloid forms are also seen.

The proximal half of the colon, rising as it does from the foregut, presents a somewhat different picture from the distal half. It has a better blood and lymph supply; its lumen is larger; the medium is more fluid and the absorptive qualities better. There is certainly a greater tendency toward the development of the more cellular types, with more tendency to bleeding, earlier and more marked systemic symptoms and possibly earlier metastases. In the distal half, the scirrhous type is probably more common with less systemic but earlier obstructive phenomena, with possibly later metastases. On the other hand, both forms are rather striking by the lateness of their metastases in the majority of cases.

Moynihan has called especial attention to the fact that constipation is the rule in left colonic growths, is rare in growths on the right side; while in a recent series with obstructive symptoms, 87 per cent were due to the former and 13 per cent to the latter.

The large, soft, fungating and encephaloid cancer of

cæcum and ascending colon rarely causes obstruction. Metastasis by blood or lymph channel is often surprisingly late. It often bears no relation to the size of the growth. A large growth of long duration may show no metastases; a small absolutely unrecognized scirrhus in the sigmoid may have an enormous metastasis in the liver which may be regarded as the primary lesion.

The general or systemic symptoms—anemia, loss of weight, strength and appetite, with an achlorhydria or low acid gastric reading—are late symptoms and the diagnosis should antedate their appearance or at least their marked manifestation. Sometimes on the other hand they may be the only symptoms and in every case with such symptoms and with no obvious cause, intestinal neoplasm should be considered as a potential factor, and careful physical and digital rectal examinations made as well as radiographic, fluoroscopic and stool studies.

According to Moynihan, the average duration of symptoms, of which the patient complained before the diagnosis was made, has been seven to nine months. In my series I have many cases in which the symptoms had been present for six months, in some for over a year, and in a few over eighteen months before the condition was suspected. The reason for this of course is that the digestive symptoms are often so vague as to arouse no suspicion. In the main they represent reflex or local phenomena due to stenosis of varying degrees or to ulceration and are usually regarded as simple dyspepsias, mucous colitis, intestinal neurosis, mild attacks of intestinal colic, progressive or periodic constipation, or occasionally even apparent diarrhœa, the latter not very uncommon in large soft ulcerating growths and sometimes being a false diarrhœa due to local irritation but in reality representing progressive obstruction above the lesion.

Some cases begin with an acute obstruction; in some, weeks or months may elapse between the mild or severe obstructive attacks while the general health of the patient may be affected little or not at all for a long period of time

because after all in certain of these cases, notably of the scirrhous type, the symptoms are entirely of mechanical origin not of a toxic origin. In a few cases the symptoms are entirely gastric—anorexia, nausea, vomiting and epigastric distress—notably in cæcal neoplasm; while of course these gastric symptoms are present in a marked degree if the obstruction is great. The colon is sometimes considerably distended above the obstruction. Rankin has decribed three cases of true megacolon. Visible peristalsis is rare; much less than in growths of the small intestine. As a rule, the lower the obstruction, the less marked are the reflex gastric symptoms. Sloughing away of a portion of the growth may relieve the digestive phenomena for a long period of time, while the therapy based on the conception that the symptoms are due to an irritable colon with the inevitable treatment by local heat, antispasmodics, low residue diet and lubrication, unquestionably may delay our diagnosis considerably by the marked temporary relief from such measures. According to Anschütz pain is present in about 63 per cent of the cases, less according to my observation, and usually in the form of intermittent discomfort, which is usually rather diffuse in the lower half of the abdomen, rarely well localized though sometimes especially marked in the umbilical or sacral regions.

Thus the symptoms may be nil, may simulate intestinal or even gastric dyspepsia or mucous colitis, or may be regarded as simple constipation, but, and this is the crux of the situation, the symptoms as a rule come out of the blue. They appear, although sometimes very gradually, without cause; they continue, albeit often with long periods of remission, irrespective of treatment. However, as mentioned before, the appropriate treatment for the suspected condition, especially mucous colitis or constipation —a smooth diet, lubrication, oil by rectum, etc.—often lulls us into a false sense of security by its quick relief of symptoms and often delays our diagnosis; unless, and this should be the invariable rule, we always consider such cases as potentially malignant and with repeated physical

examinations, fluoroscopic and radiographic studies, especially by barium enema, and repeated stool studies we rule out such possibilities. A few cases may present only toxic symptoms. In a few, almost complete obstruction may be the first sign; while in very occasional cases a single large hemorrhage may be practically the only symptom but in the vast majority of cases, probably in 90 per cent or more, the commonplace symptoms mentioned above are found.

We must of course never forget that partial obstruction and ulceration be it tuberculous, benign, or malignant, can give in many respects the same picture. But if such a lesion is demonstrated early, correct diagnosis can usually be made by further tests and surgery can be utilized relatively early.

In the majority of cases diagnosis of colonic neoplasm is ours for the asking if we but suspect its possibility, and yet the average duration of the symptoms has been many months before the true cause has been suspected. Without a suspicion the proper diagnostic procedure is not inaugurated and weeks, months and even a year or more may be wasted before the true condition is determined.

Yet even in the case of these instances of late diagnosis, it is surprising how many are susceptible to surgical treatment because of their lack of tendency to early metastasis. Case after case has come into our Clinic which has been treated for months for nervous indigestion, mucous colitis, dyspepsia and constipation and which proved to be carcinoma of the colon; and yet in the vast majority of such cases they should have been suspected for the symptoms came on without cause and persisted, sometimes with remissions, irrespective of treatment. Pain or discomfort was present in certainly something more than one-half of the cases, and this pain was usually below the umbilicus. Quite a few had epigastric distress. Definitely progressive constipation was the striking symptom in certainly one-half of the cases.

The older laboratory methods, the Kaminer Freund reaction, the increased hemolytic property or anti-trypsin of the serum, Ascoli's surface tension test, the complement fixation test and the finding of specific proteolytic ferments in the blood have no longer a place in diagnosis. They are unreliable and in the main unnecessary, for thorough physical examination, sigmoidoscopic study, examination of the stool for occult blood, and x-ray studies, especially fluoroscopic studies with the barium enema, should and usually do give us our diagnosis.

Of course none of these is infallible. In certain cases differential diagnosis is difficult or impossible. Abdominal palpation is often marvelously aided by examination of the patient in a hot bath. Fecal tumors and the very occasional foreign bodies may sometimes be very deceptive and quite obviously the lower bowel should be thoroughly emptied by enemata, sometimes repeated enemata, before making a diagnosis. A local spasm may show definite defect in the x-ray but belladonna or sodium nitrite and oil instillations usually give us our diagnosis. In some cases the history is characteristic, the tumor may even be palpable but the x-ray show no defect for some tumors in their growth do not constrict the lumen of the gut. A small growth with a slight obstruction in a redundant sigmoid may be very difficult to demonstrate by x-ray study, even by the use of more modern methods, distentions by air, various of the newer opaque mixtures, etc. In a few cases in fact even an exploratory laparotomy and careful palpation has failed to reveal the growth and yet a few months later, the lesion may be palpable, demonstrable and sometimes inoperable.

A tuberculous cæcum may only be differentiated from carcinoma by evidence of tuberculosis elsewhere or by its response to ultra violet light or cod liver oil and fruit juices. Pericæcal inflammation with mucosal ulceration due to an old and forgotten or never recognized appendical attack, especially if the appendix be retrocæcal, may absolutely simulate neoplasm; although as a rule careful

analysis of the history, a leucocyte count, temperature readings, etc. should give us the correct diagnosis.

The reverse is also true and sometimes what was regarded as a cæcal and appendical inflammatory mass proves to be neoplasm. Various inflammatory lesions—diverticulitis, polyposis, localized specific or non-specific ulcerative colitis, and possibly sigmoiditis or perisigmoiditis—may be difficult to differentiate from carcinoma; while tumors of neighboring organs, stomach, liver, ovary, kidney or pancreas may produce very puzzling pictures with persistent defect due to pressure and some obstructive symptoms.

Halstead years ago called attention to the possibility of pancreatic tumors and pancreatitis simulating new growths of the transverse colon. Recently I have seen a case of very rare œdema of the pancreas with mild pancreatitis with marked vascular engorgement, without disturbance of pancreatic function, absolutely simulating such a growth.

Perforation into a neighboring viscus—stomach, vagina or bladder—may blur the picture and arouse suspicion in the secondary and not the primary lesion. I have recently seen three cases of gastrocolic fistula due to colonic new growth where the symptoms were almost entirely gastric, a foul taste, regurgitation of fetid material, etc., and where diagnosis was beautifully shown first by barium enema and then by giving methylene blue solution by rectum, at the same time withdrawing the stomach content by tube.

In rare cases, sarcoma and lymphosarcoma must be differentiated. This is important because these in my experience are practically the only growths susceptible to ray therapy. Finally benign tumors must be eliminated because while they are rare, they are possible, and if associated with ulceration are sometimes very difficult to differentiate; adenomatous polyps, adenofibromata, lipomata, myomata and adenomyomata, angiomata, cystic tumors,

simple polyps, lymphogranulomata, dermoid and echinococcus cysts must be considered.

Careful study of the history, very careful physical examination and the barium enema generally can differentiate these benign neoplasms, but even the barium enema under the fluoroscope, while very valuable is not infallible. It may miss small growths that are present, it may diagnose growths that are absent, and in the difficult cases everything must be utilized to make a diagnosis, history, physical examination, x-ray studies, stool studies, sigmoidoscopic and proctoscopic examinations.

TREATMENT.

As to treatment, I can see nothing but surgery. Colloid selenium, copper and lead have proven singularly ineffective, although occasionally I have felt that the growth has become smaller and the obstructive symptoms less marked after the administration of selenium; although of course this may have been but a coincidence. Deep x-ray and radium therapy have given me no help in carcinoma of the colon except in an occasional colloid growth where an unqestionable arrest, albeit temporary, has occurred. Ray therapy is worth trying however in the rare sarcomata and lymphosarcomata, which are found in about one per cent of malignant growths of the colon, which in certain cases are possibly traumatic in origin and which rarely produce obstructive phenomena but often bleed extensively with a rapid development of anemia.

The surgical mortality is still high, in a recent series being 19 per cent, and some clinicians oppose surgical treatment because of this mortality as this is a disease of older people whose probable life span is not very great and in whom growth is often very slow—cases of four, five, six and even ten years duration having been reported. But I cannot accept this view because to me all these cases are potentially surgical and with early diagnosis and perhaps an ever improving technic, we should get a greater and greater number of permanent cures.

If the case is inoperable or the patients refuse surgical treatment, our treatment must perforce be purely symptomatic—a smooth, a soft and then a liquid diet, with little or no residue, lubricants and simple laxatives, enemata, oil instillations, sedatives and other measures to lessen pain and promote comfort.

As I look back over the years with their many cases of colon malignancy, I am struck by two facts; first, the vagueness of the early symptoms and yet, second, by the possibility of making a much earlier diagnosis in the vast majority of cases if we be suspicious of all symptoms.

In this paper I have touched on some of the means of making an early diagnosis, the methods employed in giving us as complete a picture of the colon and its pathology as is possible. I have laid repeated stress upon the importance of regarding no intestinal symptom which develops *de novo* as insignificant, and have insisted upon the utilization of all means at our command to determine whether the symptom, banal and commonplace though it may seem to be, may possibly represent the first, or at least a very early, symptom of a colonic new growth.

May I therefore end my paper as I began it, with this motif; suspect every digestive symptom in old people, suspect the possibility of new growth, especially if the symptoms do not yield rapidly to symptomatic therapy! For it is the realization of this possibility on the part of the great mass of internists and general practitioners that can give these patients the only treatment that at the present writing affords a real chance of cure and that may spell the difference between potential success and absolute failure.

Even in relatively late cases, it is surprising how good the results are due to the peculiar tendency of many of these growths to metastasize late. It is far better to operate early and occasionally unnecessarily on a well founded suspicion than to delay too long with its inevitable outcome.